

REMARKS

In the Office Action of November 30, 2005, a restriction requirement was imposed dividing the claims into two different groups. Specifically, the Office Action imposed a restriction requirement between the claims of Group I (Claims 1-24) drawn to a semiconductor device and Group II (Claims 25-29) drawn to a method of using a semiconductor device. Applicant respectfully traverses the restriction requirement with respect to Groups I and II.

According to MPEP § 803, two criteria must be met for a restriction requirement to be proper. First, the inventions must be independent or distinct as claimed. Second, a serious burden must be imposed on the Examiner. As stated in MPEP § 803, “if the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.” Applicants respectfully submit that the close relationship between the subject-matter of the claims in Groups I and II would allow all of the claims in the two groups to be examined together without imposing a serious burden for either search or examination.

In the present case, the semiconductor device claims of Group I and the method claims of Group II are so closely related that the pertain art with respect to the device claims will also be the pertain art for the method claims. Therefore, the two sets of claims do not require a separate field of search. An examination of the two steps that make-up the body of method Claim 25 illustrates the close relationship between that method claim and the device Claim 1.

Independent Claim 25 is directed to a method of carrying out a quantum dot manipulation in a semiconductor quantum dot. The method recited in Claim 25 includes two steps. This first step is providing a multilayer semiconductor structure with electrodes to provide a quantum dot having an elongated length and a narrow width and a asymmetric confining potential along its length such that orbital excitation of an electron in the quantum dot results in lateral center of charge motion. Every element, other than the step of “providing”, in step (a) of Claim 25, is also recited in section (b) of Claim 1. Therefore, any search directed to the structural elements of

section (b) in Claim 1 would necessarily also uncover the relevant prior art for step (a) in method Claim 25.

The second step in method Claim 25 involves applying microwaves to a quantum dot in order to provide lateral motion to the center of charge in the quantum dot. Section (c) of device Claim 1 recites an electrometer for detecting the change in charge resulting from the lateral movement of the center of charge in a quantum dot. Any search for an electrometer that detects the lateral movement of the center of charge in a quantum dot (as recited in Claim 1) would necessarily uncover the relevant prior art for a method that involves the step of providing lateral motion of the center of charge in a quantum dot (as recited in Claim 25). For these reasons, Applicants respectfully submit that the search and examination of the claims of Groups I and II can be conducted without additional burden to the Examiner. Therefore, Applicants respectfully request that the restriction requirement between Groups I and II be withdrawn.

CONCLUSION

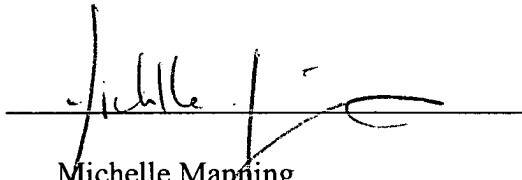
For the foregoing reasons, it is respectfully submitted that the claims of Group I and II may be examined together without placing a serious burden on the Examiner, and that appropriate reasons for insisting upon restriction of the claims have not been provided established. Thus, it is respectfully requested that the restriction requirement between the inventions of Groups I and II be withdrawn and that all of the pending claims, Claims 1-29, be examined together.

Respectfully submitted,

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FOLEY & LARDNER LLP
Customer Number: 23524
Telephone: (608) 258-4305
Facsimile: (608) 258-4258

By


Michelle Manning
Attorney for Applicants
Registration No. 50,592